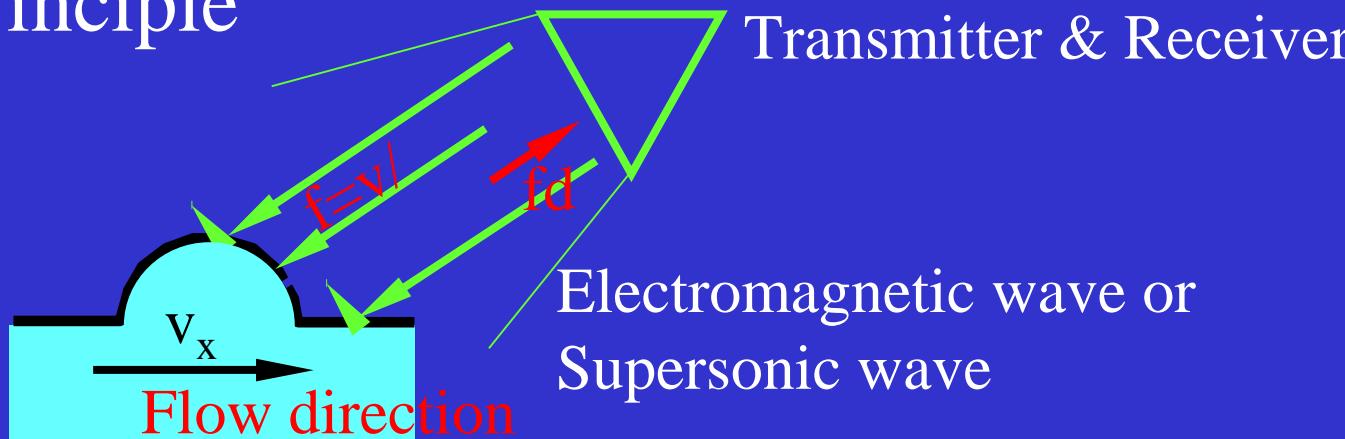


# Doppler WG

Radio current meter

Supersonic current meter

Principle



Measurement of Doppler Shift

Electromagnetic wave

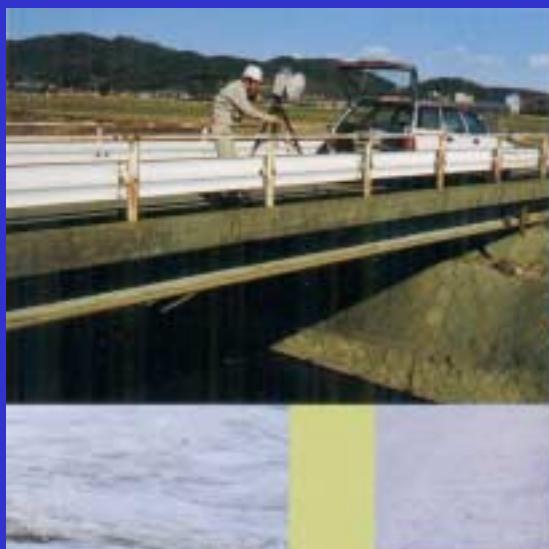
$$f_d = \frac{2v_x}{\nu} f$$

10.525MHz

Supersonic wave

$$f_d = \frac{2v_x}{C - v_x} f$$

20.4KHz



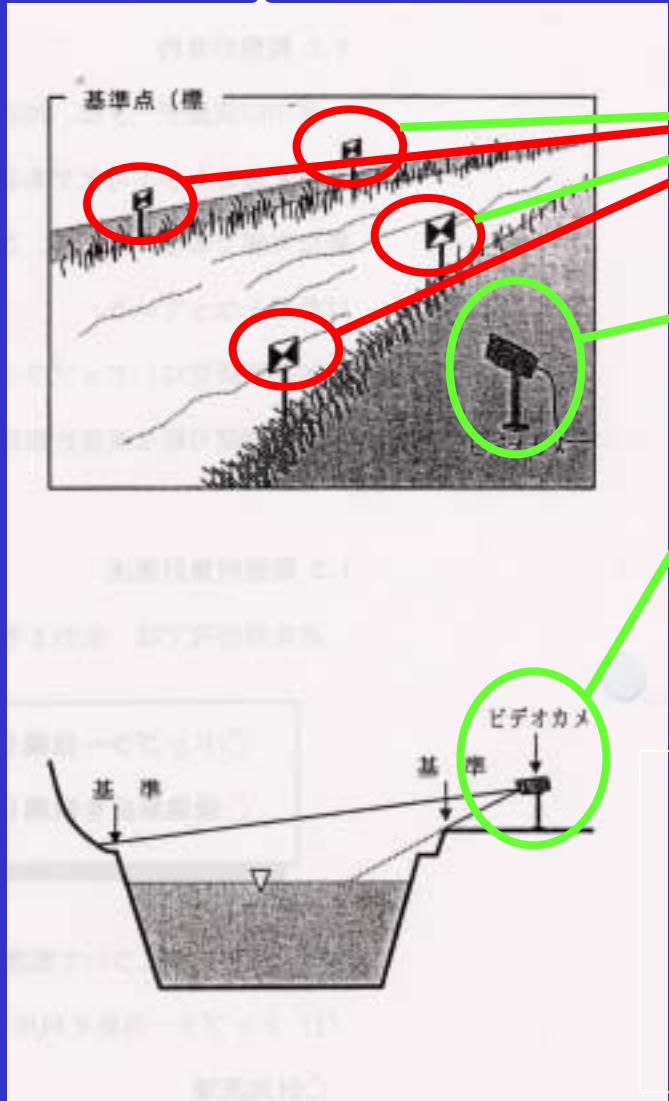
# Imagery WG

## Particle Image Velocimetry Type

### Optical Flow Type

#### Principle

#### Flow of image analysis



Control Points

Video Taking

2D → 3D

Set of Analyzing Area

Image Analysis  
PIV Tracing of floating objects,  
etc.

Optical Flow Tracing of  
brightness

Estimation of surface velocity